UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

19 APR 2011

Colonel Robert D. Peterson
District Engineer
U.S. Army Corps of Engineers
Huntington District
502 Eighth Street
Huntington, WV 25701

Re: UT Georges Cr - 2006-2196-GUY; Highland Mining Company; Georges Creek Surface Mine; Logan County, West Virginia

Dear Colonel Peterson:

The U.S. Environmental Protection Agency (EPA) has reviewed the public notice for Highland Mining Company's Georges Creek Surface Mine located near Hetzel, Logan County, West Virginia.

EPA's review and comments are based upon the Public Notice issued March 3, 2011; the application; and supplemental documentation submitted March 11, 2011 from Mr. Terry Clarke, Chief, Energy Resources Section, which included a revised Compensatory Mitigation Plan (CMP), additional alternatives analysis documentation, a General Monitoring Plan, and other information. The project was previously public noticed on July 21, 2009. In response to the public notice, EPA provided comment letters on August 28 and subsequently on September 22, 2009, expressing concerns that the project, as proposed, will result in substantial and unacceptable impacts to aquatic resources, as per Part IV, paragraph 3(b), of the 1992 Clean Water Act (CWA) Section 404(q) Memorandum of Agreement (MOA) between the EPA and the Department of the Army.

EPA's review is intended to ensure that the proposed project meets the requirements of the CWA. The CWA Section 404(b)(1) Guidelines (40 C.F.R. Part 230) provide the substantive environmental criteria against which this application must be evaluated. Fundamental to the Guidelines is the premise that no discharge of dredged or fill material may be permitted if: (1) it causes or contributes, after consideration of disposal, site dilution and dispersion, to violations of any applicable state water quality standard; (2) a practicable alternative to the proposed discharge exists that would have a less adverse impact on the aquatic environment; or (3) the discharge would cause or contribute to significant degradation of the waters of the United States. See 40 C.F.R. § 230.10.

EPA appreciates that the applicant submitted a revised CMP, additional alternatives analysis information, and a draft general monitoring plan in an effort to address elements of EPA's previous comment letters referenced above. While these efforts represent an

improvement, they do not include substantive efforts sufficient to ensure that there may not be unacceptable impacts to aquatic resources covered in Part IV, paragraph 3(a), of the 1992 CWA Section 404(q) MOA between the EPA and the Department of the Army. The remainder of this letter provides general comments. The enclosure provides more detailed technical comments on the various elements of the application.

Project Background

The proposed project utilizes contour, auger, and highwall mining to extract 650,000 tons of coal. The proposal involves the construction of one valley fill and one temporary in-stream drainage pond. The proposed project would result in impacts to a total of 4,220 linear feet (lf) of ephemeral and intermittent reaches of an unnamed tributary to Georges Creek. According to the public notice, no impacts to perennial streams or wetlands are proposed for this project. The applicant proposes the restoration of stream segments impacted by the temporary drainage pond, as well as the creation and enhancement of stream channels on and off site.

The project is located in the Dingess Run subwatershed within the Guyandotte River sub-basin. Current mining activities are underway within the Dingess Run subwatershed, including the adjacent existing Georges Creek Surface Mine (SMCRA No. S-5002-01; Corps No. LRH-2006-2196). There are several streams listed as impaired on the CWA Section 303(d) list in this subwatershed including Dingess Run and the Guyandotte River. Dingess Run is listed on West Virginia's current Section 303(d) list of impaired waters for biological impairment, with a West Virginia Stream Condition Index (WVSCI) score of 33.62. There are approved Total Maximum Daily Loads for iron, aluminum, and fecal coliform for the Guyandotte River.

Based on the information currently available to EPA, the unnamed tributary to Georges Creek proposed to be impacted was measured at a WVSCI score of 93.2 at its headwaters and 89.7 at the mouth where the proposed pond would be located. The unnamed tributary to Georges Creek had an in-stream conductivity level of 380 µS/cm and a Rapid Bioassessment Protocol (RBP) score of 158. Downstream portions of Georges Creek had an in-stream conductivity level of 384 µS/cm and WVSCI score of 81.2. Data provided by the applicant indicate that the streams proposed to be filled are of very good quality and represent relatively unimpacted areas within a larger degraded system. These streams are vital components of the aquatic ecosystem and provide clean freshwater dilution to the impaired Dingess Run.

Remaining EPA Concerns

Despite the new information submitted by the applicant, it is still unclear that the proposed surface mine design and construction techniques represent a change from traditional mining practices that have been shown to often result in significant degradation to waters of the United States. The applicant has not provided information from existing nearby mines, which has been useful to EPA in evaluating other similar permit applications, to support a prediction that the types of mining practices being proposed would not result in significant degradation of the aquatic ecosystem.

Particularly in light of the very good quality of the streams proposed to be filled relative to the larger watershed, the CMP does not appear to ensure the replacement of lost functions of the filled streams. Given the good quality of the downstream areas of Georges Creek, it is not clear that the enhancement proposed for this area will provide environmental benefit sufficient to offset the proposed impacts. The additional elements of the revised CMP (restoration of 250 lf of stream impacted by the sediment pond, creation of 1,850 lf of five high gradient channels from National Pollutant Discharge Elimination System (NPDES) outfall points) also seem unlikely, even with the proposed enhancement, to be sufficient to fully offset the unavoidable impacts.

Mr. Terry Clarke, Chief, Energy Resources Section of Huntington District Army Corps of Engineers provided EPA Highland Mining Company's general monitoring plan. The plan proposes chemical and biological monitoring at various sampling points. The applicant proposed to use conductivity triggers of 300 µS/cm, which triggers the implementation of an unspecified adaptive management plan, and 500 µS/cm, which will require the applicant to provide additional water quality based mitigation in the subwatershed. EPA supports the use of proposed triggers as a means of accounting for uncertainty. However, given the lack of specificity regarding the adaptive management activities which will be implemented, it cannot be said that the general monitoring plan provides assurance that the impacts from the project can be adequately measured and, if impacts are trending toward levels of concern, addressed. In addition, as set forth in the enclosure, EPA would like to work with the Corps and the applicant to further refine and expands upon the proposed concepts.

Given the past, present, and proposed future mining activities within the subwatershed, EPA continues to recommend that the Corps conduct a thorough cumulative effects analysis pursuant to 40 C.F.R. Sections 230.10(c), 230.11(g) and 230.12, which includes a detailed presentation of past, present, and reasonably foreseeable activities. We suggest an approach that would manage and link proposed projects to overall water quality and habitat improvement on a subwatershed and sub-basin basis.

As we acknowledged above, while the applicant has made efforts to address EPA's previous comments, we remain concerned that the project, as proposed, may result in substantial and unacceptable impacts to aquatic resources as covered in Part IV, paragraph 3(a), of the 1992 CWA Section 404(q) MOA between EPA and the Department of the Army. Please find enclosed additional project-specific technical comments.

EPA remains committed to working with you and the applicant to assure that the proposed impacts resulting from this project are minimized in accordance with the CWA Section 404(b)(1) Guidelines and that significant degradation is prevented. As proposed, it appears that impacts to very good quality resources, based on data provided by the applicant, could be significant and that preparation of an Environmental Impact Statement (EIS) to thoroughly evaluate alternatives may be required. As you make your determination whether to prepare an EIS, we recommend that you consider the very good quality of waters being directly impacted by the proposed project. In addition, based on the information available to EPA, it is not clear that impacts are sufficiently minimal to direct environmental documentation in compliance with NEPA to an Environmental Assessment with a Finding of No Significant Impact particularly in

light of cumulative impacts downstream from mining in this watershed. We would appreciate the opportunity to discuss with you this issue of whether an EIS should be prepared, as well as other concerns with the permit application.

If you have any questions regarding these comments, the staff contact for this project is Ms. Alaina DeGeorgio at (215) 814-2741, or Ms. Jessica Martinsen, Team Leader, at (215) 814-5144.

Sincerely,

John R. Pomponio, Director for
Environmental Assessment and Innovation Division

Enclosure

Technical Comments on Highland Mining Company's Georges Creek Surface Mine

Alternatives Analysis

- The alternatives analysis refers to, but does not provide, a set of criteria used to determine the practicability of nine potential valley fill locations. Please include what criteria were used and any analysis that was considered to support the selection of this particular valley fill location in the very good quality unnamed tributary to Georges Creek.
- The document states that no existing mine areas needing backfill material or other potential material are available within a reasonable proximity, but the term "reasonable proximity" is not clearly defined. Please describe what steps were taken to identify potential surface mines needing material. How far away is the nearest mine that could take additional material for storage?
- The document states that several alternatives were removed from consideration because the haul distances would be greater than 0.5 miles. Please describe why a half-mile limit is the most appropriate one for this location. All potential possibilities to move excess spoil off-site which may result in reduced stream impacts from the proposed valley fill should be explored, and EPA does not believe that haul distances should be constrained to 0.5 mile absent a compelling justification that distances greater than this value are per se impractical.
- Hauling uphill due to mining the upper seams first is stated to result in an increased number of trucks being used. Please clarify how many trucks would be needed beyond what would be needed in the current configuration, and explain why the number of trucks used is a limiting factor in this instance. Please elaborate on the safety concerns resulting from increasing the number of trucks.
- Side-hill fills were mentioned in the alternatives analysis. What would the linear foot of impact to streams be if a side-hill fill were used in this location? Was consideration given to utilizing side-hill fills in the nine potential valley fill locations discussed in the document?
- Please clarify why the valley fill material will not require a monitored rate of compaction. If a certain rate of compaction is desired, how can this rate be obtained without monitoring the rate of compaction?
- Please define what material is to be identified as toxic material that will require a special materials handling plan. Will this toxic material include Total Dissolved Solids (TDS)-producing strata or strata high in selenium? Based on the information provided, there is insufficient detail to review the proposed special materials handling plan. Please provide a more detailed special materials handling plan and explain how the implementation of that plan will help to address water quality concerns.
- Please explain how surface water contact with the valley fill is expected to be minimal. What steps are being taken to minimize contact, and how will these methods help to address water quality concerns?
- Please provide a comparison of how the mine design and construction techniques proposed for this project differ from those that have been used on the adjacent mining operation, and describe how the proposed methods will help to address water quality and significant degradation concerns.

Revised Compensatory Mitigation Plan

- The drainage area from the pond area at the toe of the fill is roughly 180 acres. All impacts associated with the project are described as intermittent and ephemeral stream. This size drainage area indicates that reaches of the stream may be perennial.[1] Please provide all data used to categorize the flow regime of the impacted streams.
- The applicant proposed the creation of channels from converted NPDES outlets bordering the bonded property through rain events as part of the CMP. Based on the information provided, these creation channels will provide few of the ecological functions of the streams that are being impacted by this proposal. In addition, the resulting erosional process that will occur here could impact downstream channels with increased sedimentation, causing secondary impacts to those channels. No measures of chemical or biological success criteria have been proposed for the created channels. Data has been proposed to be used for comparison purposes only. Measureable and observable chemical, biological and physical success criteria are necessary for all components of the proposed CMP to ensure that in fact replaces the structure and functions of impacted resources.
- The CMP includes a proposal to enhance 4,000 lf of Georges Creek to take place during the first dry period upon permit approval. Based on the data available to EPA, existing conditions within the enhancement reach appear to be good. EPA is concerned that enhancement measures proposed will result in little ecological benefit to the watershed. The applicant should consider enhancement opportunities elsewhere in the watershed that may improve watershed health and provide greater ecological watershed benefit. In addition, clear success criteria should be incorporated for enhancement activities along George's Creek to ensure that any compensation activities that occur actually do result in improved conditions.
- The proposed monitoring timeframe is five years. EPA recommends that a monitoring period of ten years be included to demonstrate that full replacement of both structure and function has occurred.

General Monitoring Plan

- EPA requests that adjacent mine data, both chemical and biological, be submitted for review in order to provide a perspective on likely project impacts.
- The monitoring plan proposes to conduct chemical and biological monitoring. Although no specific physical monitoring plan was included, the document states that cross sections of channels will be obtained at monitoring points. It is not clear why this is being done as part of this plan. Please clarify.
- Please provide a clear map showing proposed monitoring locations, including the proposed control location.
- Please provide table of counts by genus in addition to the biological metrics.

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[1] Paybins, K. S. (2003). Flow origin, drainage area, and hydrologic characteristics for headwater streams in the mountaintop coal-mining region of southern West Virginia. *Water Resources Investigation Report 02-4300. U.S. Geological Survey. Charleston, WV.*

- EPA recommends that the Corps require conductivity be used as the primary trigger for adaptive remedial action, supplemented by the biologically based triggers outlined below. As outlined above, EPA appreciates the use of specific conductivity triggers within the permit to trigger adaptive management activities. Due to the strong scientific evidence that elevated levels of conductivity result in significant declines in macroinvertebrate community health, [2] EPA believes that utilizing conductivity as the primary trigger is most protective. Use of conductivity as a trigger also provides enhanced protection for the applicant to ensure that appropriate steps can be taken before the project would result in significant degradation of the aquatic ecosystem.
- The applicant appears to propose that it would accept as a trigger for additional remedial action a decline in the downstream WVSCI score into a lower 'category' from baseline for 3 samples. While EPA generally would support the use of biological metrics, secondary to conductivity triggers, to help protect against significant degradation, the condition that the applicant appears to propose is insufficient to achieve that end.
    - First, any sample that shows that the receiving water condition has declined from its current high quality baseline to below 68 would likely represent significant degradation in and of itself, and therefore is not an appropriate trigger value for BMP implementation. Because baseline WVSCI scores as submitted by the applicant suggest that in-stream biological communities are of very good quality (e.g., 81 and 93 for George's Creek and the impacted unnamed tributary, respectively), a decline in the WVSCI score for George's Creek from baseline (93 or 81) to below 68 would represent significant degradation. Therefore, using this as a trigger for BMP implementation is inappropriate because by the time this score is reached, such degradation has already occurred. Using this trigger as a level at which to cease discharges of fill material into waters of the U.S. to prevent additional degradation would be more appropriate.
    - Because baseline monitoring results suggest that affected streams have baseline WVSCI scores of at least 81, which is greater than 78 (categorized as "very good"), any downward departure from the baseline WVSCI score should be used as the initial trigger to ensure that the waterbody does not experience a categorical decline from "very good" to "good".
    - We recognize that the applicant may be concerned about natural variability in WVSCI scores. If so, the applicant could re-sample within the same reach immediately to confirm the initial score. Moreover, EPA would recommend the

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[2] Pond, G.J., M.E. Passmore, F.A. Borsuk, L. Reynolds, and C.J. Rose. 2008. Downstream Effects of Mountaintop Coal Mining: Comparing Biological Conditions Using Family- and Genus-Level Macroinvertebrate Bioassessment Tools. J. N. Am. Benthol. Soc. 27(3):717-737.

U.S. EPA. The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields (2011 Final). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/138F, 2011.

U.S. EPA. A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams (2011 Final). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/023F, 2011.

M. A. Palmer, E. S. Bernhardt, W. H. Schlesinger, K. N. Eshleman, E. Foufoula-Georgiou, M. S. Hendryx, A. D. Lemly, G. E. Likens, O. L. Loucks, M. E. Power, P. S. White, P. R. Wilcock. *Mountaintop Mining Consequences*. Science. Vol. 327. 1/8/10. P148-9.

use of only 2 samples to confirm a specific score and not the 3 proposed because of the potential for a time lag between changes in water chemistry and the response in the community. As noted above, for this reason, we recommend that conductivity be used as the primary trigger for adaptive management to enable action to be taken before impacts to the aquatic community occur.

  - We appreciate that the applicant has proposed this biological approach and would like to work with the Corps and the applicant to better understand and to refine this concept as proposed to ensure that it catalyzes effective and adaptive remedial action before significant degradation occurs.

- A downward trend in WVSCI at the control site should not be used as the sole evidence to remove responsibility for downward trends at downstream sites below the operation. If the applicant believes that upstream activities not associated with the proposed Georges Creek Surface Mine operations are causing degradation, information should be presented to resource agencies for review and comment.
- The trends analysis is not clear and has been proposed for multiple purposes, including biological trends, conductivity trends, and to identify potential trigger points. The purpose of a trends analysis is to identify issues early enough to implement an appropriate response before a threshold is reached. The applicant describes calculating conductivity x flow as a time series. EPA recommends that a trends analysis be based on a flow-weighted average over the course of quarter year and that the applicant modify their approach to implement a trends analysis to identify potential problems early.
- The use of a three-month rolling average for trends analysis is not appropriate and is not protective. The threshold may have been exceeded several times by the time a three-month rolling average shows the trend exceeding the threshold.
- Please clarify how biological condition will factor into the thresholds for implementation of the adaptive management plan. As noted above, EPA recommends that thresholds triggering AMP implementation and enhanced BMPs should include consideration of both conductivity levels, and as a secondary indicator, WVSCI scores.
- EPA is concerned about the handling of outliers in the general monitoring plan. It is proposed that if an outlier is identified from a six-month period, it will be resampled to determine if it is truly an outlier. EPA believes that it is not appropriate to conduct resampling within a six-month period. Re-sampling for potential outliers should occur within a reasonable but very short period of time. The reason for accepting data as an outlier should be, for example, equipment failure. A statistical outlier does not mean that it is not representative of stream conditions.
- We cannot ascertain from the face of the Section 401 certification whether the State treated the portions of the proposed receiving streams as of a quality consistent with "high quality waters" as defined in CSR 47-2-2.8. Please provide any additional information that may be in your possession or the applicant's possession regarding the State's analysis.

Cumulative Impacts

- EPA recommends that the analysis should describe the current state of the ecosystem. The affected environment including impacts to the subwatershed from filling of streams and potential impacts to private drinking water wells and other drinking water supplies.

- EPA recommends that the analysis include function and habitat, and the effects of the hydrologic modifications to the sub-basin and subwatershed.
- EPA recommends that the impacts of deforestation on water quality, water quantity, and other ecological conditions within the sub-basin and subwatershed be included in the cumulative impacts analysis.
- EPA recommends that these impacts be compared to the attributes of healthy watersheds in the ecoregion with a goal towards assuring that the sub-basin and subwatershed within which the project is proposed will not be impacted beyond its current condition.
- The Council on Environmental Quality at 40 CFR 1508.7 defines cumulative impacts as "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable action." The cumulative impacts analysis should include all of these types of actions. Reasonably foreseeable actions should include other proposed mines in the watershed.
- Cumulative impact analysis could help identify areas within the watershed that may need improvement. This analysis could then guide possible mitigation opportunities that would lead to watershed uplift.

Environmental Justice

- EPA recommends that the Corps and the applicant evaluate the potential for disproportionate adverse effects to low-income or minority populations as a result of this project. That evaluation should include consideration of impacts to the affected community including impacts to drinking water supplies, subsistence fishing, and effects of blasting, truck traffic, noise and fugitive dust and any necessary steps to avoid or mitigation such potential impacts.
- EPA also recommends that the communities be actively consulted during the permitting process. For example, we recommend that details regarding proposed modifications to the project, including the draft NEPA document, be made available to affected EJ communities for their review and comment. These outreach efforts would provide the affected communities with a clearer picture of the potential impacts of the project and assist the Corps in their decision-making process.